

**Amendment and Response**

Applicant: Cory Watkins et al.

Serial No.: 10/073,426

Filed: February 11, 2002

Docket No.: 1552 - CA1 (A126.143.101)

Title: CONFOCAL 3D INSPECTION SYSTEM AND PROCESS

**IN THE CLAIMS**

Please add claim 21.

Please amend claims 1, 5, 8, 12, and 16 as follows:

1.(Currently Amended) An inspection device for inspecting projections on a substrate such as bumps on microelectronics such as semiconductors, the inspection device comprising:  
a light source; and  
a non-laser confocal sensor;  
wherein the inspection device is adapted to rapidly inspect projections on a substrate.

2.(Original) The inspection device of claim 1 further comprising a camera for collecting focused light.

3.(Original) The inspection device of claim 2 wherein the non-laser confocal sensor includes a pellicle beamsplitter for receiving light from the light source and redirecting said light.

4.(Original) The inspection device of claim 3 wherein the non-laser confocal sensor includes an aperture array for receiving light from the pellicle beamsplitter.

5.(Currently Amended) The inspection device of claim 3 wherein the non-laser confocal sensor includes a dual telecentric object reimager including a plurality of lenses;

6.(Original) The inspection device of claim 3 wherein the non-laser confocal sensor includes a telecentric camera imager including a plurality of lenses.

7.(Original) The inspection device of claim 3 wherein the non-laser confocal sensor includes:  
an aperture array for receiving light from the pellicle beamsplitter;  
a dual telecentric object reimager including a plurality of lenses; and  
a telecentric camera imager including a plurality of lenses.

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8.(Currently Amended) An inspection device for inspecting projections on a substrate such as bumps on microelectronics such as semiconductors, the inspection device comprising:  
a light source; and  
a white light confocal sensor;  
wherein the inspection device is adapted to rapidly inspect projections on a substrate.

9.(Original) The inspection device of claim 8 further comprising a camera for collecting focused light.

10.(Original) The inspection device of claim 9 wherein the confocal sensor includes a pellicle beamsplitter for receiving light from the light source and redirecting said light.

11.(Original) The inspection device of claim 10 wherein the confocal sensor includes an aperture array for receiving light from the pellicle beamsplitter.

12.(Currently Amended) The inspection device of claim 10 wherein the confocal sensor includes a dual telecentric object reimager including a plurality of lenses;

13.(Original) The inspection device of claim 10 wherein the confocal sensor includes a telecentric camera imager including a plurality of lenses.

14.(Original) The inspection device of claim 10 wherein the confocal sensor includes:  
an aperture array for receiving light from the pellicle beamsplitter;  
a dual telecentric object reimager including a plurality of lenses; and  
a telecentric camera imager including a plurality of lenses.

15.(Original) The inspection device of claim 10 wherein light source is one of a halogen light source, an arc light, light emitting diodes including white or colored light emitting diodes, and fluorescent lights.

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16.(Currently Amended) An inspection device for inspecting projections on a substrate such as bumps on microelectronics such as semiconductors:

    a non-laser light source; and

    a confocal sensor;

wherein the inspection device is adapted to rapidly inspect projections on a substrate.

17.(Original) The inspection device of claim 16 further comprising a camera for collecting focused light, and a pellicle beamsplitter for receiving light from the light source and redirecting said light.

18.(Original) The inspection device of claim 17 wherein the confocal sensor includes:

    an aperture array for receiving light from the pellicle beamsplitter;

    a dual telecentric object reimager including a plurality of lenses; and

    a telecentric camera imager including a plurality of lenses.

19.(Original) The inspection device of claim 18 wherein light source is one of a halogen light source, an arc light, light emitting diodes including white or colored light emitting diodes, and fluorescent lights.

20.(Original) The inspection device of claim 16 wherein light source is one of a halogen light source, an arc light, light emitting diodes including white or colored light emitting diodes, and fluorescent lights.

21.(New) The inspection device of claim 16, wherein the confocal sensor is characterized by the absence of a Nipkow disk.